VERMONT

Vermont Department of Environmental Conservation
Watershed Management Division
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Agency of Natural Resources

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January 2, 2014

Mr. William Finger
Town Manager
Town of Middlebury
94 Main Street
Middlebury, VT 05753

SUBJECT: NPDES #VT0100188, Vermont Permit #3-1210
Middlebury Wastewater Treatment Facility
Compliance Evaluation Inspection

Dear Mr. Finger:

On December 5, 2013, I conducted a Compliance Evaluation Inspection at the Middlebury Wastewater Treatment Facility (WWTF) located at 243 Industrial Avenue. Wastewater Superintendent Robert "Bob" Wells and Operator William "Bill" Malloy assisted me in my inspection. The inspection consisted of a walk-through of the facility to observe its general condition and operability, a review of the facility's records, and a tour of the Main Pump Station. Although the final effluent from the facility was not sampled as part of the inspection, the final effluent being discharged at the time of the inspection appeared to be very clear and of excellent quality.

The overall inspection rating for the Middlebury Wastewater Treatment Facility for the period November 2012 through October 2013 is "Excellent", the highest rating in our five tier rating system.

Self-Monitoring Data Review

The self-monitoring reports for the previous 12 months were reviewed. There was one *Escherichia coli* (*E. coli)* bacteria violation on May 21, 2013, when the instantaneous maximum of 1,400 colonies/100 ml exceeded the permit limit of 300 colonies/100 ml. Typically the *E. coli* count gradually increases over several weeks and the operators clean the Ultraviolet (UV) light disinfection system bulbs and maintain compliance. The *E. coli* results for the two weeks prior to the violation were both very low at 6 colonies/100 ml on May 6 and 9 colonies/100 ml on May 13, so the cause of the violation on May 21 is unknown. Following the violation, the operators cleaned the UV bulbs in both banks. The follow-up *E. coli* sampling result for May 22, 2013 was 10 colonies/100 ml, which was in compliance. *E. coli* is measured weekly, so the overall percentage violation rate for one violation is very low. There were no other violations and all parameters were reported as required. This is an outstanding compliance record.

The Middlebury WWTF consistently removed 98–99% of the incoming Biochemical Oxygen Demand (BOD_5) and 97–99% of the incoming Total Suspended Solids (TSS). The facility consistently discharged an effluent with a monthly average concentration of less than 9 mg/L BOD_5 and less than 8 mg/L TSS, compared to permit limit of 30 mg/L for each parameter. This is excellent effluent quality and the operators are commended for this achievement.

Facility Walk-Through

The Middlebury WWTF has an annual average flow permit limit of 2.2 MGD, and generally consists of headworks with grit removal and a mechanical fine screen, four Sequencing Batch Reactors (SBRs), chemical addition of Aluminum sulfate (alum) for phosphorus removal, and UV light disinfection. Biosolids are dewatered on two sludge presses and lime stabilized in a RDP Technologies Inc. thermoblender.

All four SBRs were on-line on the day of the inspection. There was an excellent aeration pattern in SBRs No. 1, 2, and 4 during the react mode. The discharge from SBR No. 3 was observed.

The buildings and grounds were very neat and orderly. The various pieces of equipment appeared to be very well maintained and were all operational. Bob explained the procedures the operators have implemented to optimize the dewatering and lime stabilization of biosolids to produce Class A Biosolids for beneficial reuse.

Maintenance items during the past year included installing 200 new diffusers and a new decant valve in SBR No. 2 in September 2013; and replacing all 32 UV light disinfection system bulbs in November–December 4, 2013. Tank cleaning conducted by Hartigan in 2013 included SBR No. 2, both septage receiving tanks, and one sludge holding tank, Bob reported that new diffusers were installed in SBR No. 1 in 2012, and that new diffusers will be installed in SBRs No. 3 and 4 in 2014 and 2015, respectively. The operators are commended for their comprehensive preventative maintenance program.

A new drying bed with a concrete floor and side walls was installed in the fall of 2012. It is used to drain grit from Vactor truck cleaning of tanks and sewer lines, prior to disposal in the landfill.

From a cursory review of the records, all of the required records are complete and very well organized. The flow data for at least the past three years is stored on the computer and can be printed for any date requested, which is acceptable. The effluent flow meter calibration check procedure was reviewed and is acceptable.

The laboratory was very neat and orderly. For the parameters required to be reported on the monthly WR-43 reports, Operator Bill Malloy conducts the analyses for BOD_5, TSS, Total Phosphorus, *E. coli*, Settleable Solids, and pH. Bill also conducts numerous process control tests. The benchsheets are detailed and complete. Analyses for Total Kjeldahl Nitrogen (TKN), Nitrite, and Nitrate are conducted by a contract laboratory. A copy of the Laboratory Quality

Control Manual was available. Bill is commended for the excellent and proactive manner in which he operates the laboratory.

At the Main Pump Station, the expansion of the wet well and the installation of a new grit removal system was completed on August 18, 2010. This project was designed to reduce the frequency of sewer overflows and achieve compliance with the Agency's 1990 Combined Sewer Overflow (CSO) Control Policy. During the previous 12-month period, only one overflow occurred at the Main Pump Station on October 19, 2012, due to a rain event of 2.97 inches. The design storm is 2.5 inches in 24 hours, so this overflow was in compliance with the CSO Control Policy.

Overflows also occurred at Pump Stations No. 3–Weybridge Street and No. 9–Weybridge Street on October 19, 2012, and these were also in compliance with the CSO Control Policy. Overflows occurred at Pump Stations No. 3 and No. 9 on March 12, 2013 with 1.55 inches of rain on saturated ground from snow melt, and from Pump Station No. 9 on July l4, 2013 with 0.47 inches of rain on saturated ground. These overflows occurred with rain events below the design storm.

Aldrich + Elliott conducted the *Sewer System Evaluation Study - Phase I* in 2013 that included the drainage area for Pump Station No. 9. As follow-up to the study, Bob plans to conduct flow monitoring of two sections in the drainage area of Pump Station No. 9 to look for sources of infiltration. Phase II of the *Sewer System Evaluation Study* is planned for 2014. The Town is commended for proactively investigating the cause of overflows from Pump Station No. 9. *Please send a copy of the Sewer System Evaluation Study – Phase I and Phase II reports to this office when available.*

The approximate 12,000 linear foot force main from the Main Pump Station to the WWTF was cleaned by an innovative technology of ice pigging in October 2013. The results of the drawdown tests show that the pumping capacity for two pumps increased from approximately 5.08 MGD to 6.26 MGD following this cleaning, based on wet well drawdown rates.

For annual collection system maintenance in 2013, Hartigan jetted approximately 9,000 linear feet of sewer lines (including known problem areas) and cleaned eight pump station wet wells. Bob maintains a color-coded map of the collection system and highlights the sewer lines cleaned each year, which is very proactive.

The Middlebury WWTF appears to have an excellent safety program with Lock Out/Tag Out and Confined Space Entry programs. One operator is the designated safety officer.

Bob is planning to have an energy efficiency audit conducted at the Middlebury WWTF through Efficiency Vermont, which is excellent. The initial energy efficiency walk-through has been conducted. The site lighting was replaced with LED lights in 2013. The operators and the Town are commended for these energy efficiency initiatives.

Summary and Recommendations

The overall inspection rating for the Middlebury Wastewater Treatment Facility for the period November 2012 through October 2013 is a well-deserved "Excellent", the highest rating in our five tier rating system. The operators are commended for achieving an excellent compliance record, and for their dedicated and proactive operation and maintenance of the wastewater treatment facility, pump stations, and collection system. It is obvious that they take pride in producing the highest quality effluent possible. The support of the Town is also appreciated. Please send copies to this office of the reports for the *Sewer System Evaluation Study - Phase I* and *Phase II* when available.

If you have any questions or comments concerning this report or facility operations in general, please feel free to contact me at (802) 490-6183 or liz.dickson@state.vt.us.

Sincerely,

Liz Dickson
Environmental Analyst V

Enclosure (*EPA Water Compliance Inspection Report*)

cc: Bob Wells, Chief Operator, Middlebury Wastewater Treatment Facility
Andrew Spejewski, Environmental Engineer, U.S. EPA Region 1 (via e-mail)
Ernie Kelley, Manager, Wastewater Program, Watershed Management Div. (via e-mail)
Middlebury Wastewater Treatment Facility Electronic Compliance File

United States Environmental Protection Agency
Washington, D.C. 20460

Water Compliance Inspection Report

Section A: National Data System Coding (i.e., PCS)

Transaction Code	NDPES	yy/mm/dd	Inspection Type	Inspector	Fac Type
1	3 VT0100188	11 12 131205	17 18 C	19 S	20 1

Inspection Type Description

Remarks

21 66

Inspection Work Days	Facility Self-Monitoring Evaluation Rating	B1	QA	Reserved
67 . 69	70 5	71 N	72 N	73 74 75 80

Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number)
Middlebury Wastewater Treatment Facility
243 Industrial Avenue
Middlebury, VT

Entry Time/Date: 9:30 AM 2013/12/05
Permit Effective Date: November 25, 2008
Exit Time/Date: 2:30 PM 2013/12/05
Permit Expiration Date: September 30, 2013*

Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)
Mr. Robert Wells, Wastewater Superintendent and Mr. William Malloy, Operator
Phone: 802-388-6514
Fax: 802-388-0495

Other Facility Data

Name, Address of responsible Official/Title/Phone and Fax Number.
Mr. William Finger, Town Manager, Town of Middlebury
94 Main Street
Middlebury, VT 05753 Phone: 802-388-4041 Fax: 802-388-4364

Contacted: [ ] Yes [X] No

Section C: Areas Evaluated During Inspection (Check only those areas evaluated)

[X] Permit	[X] Self-Monitoring Program	[ ] Pretreatment	[ ] MS4
[X] Records/Reports	[ ] Compliance Schedules	[ ] Pollution Prevention	
[X] Facility Site Review	[ ] Laboratory	[ ] Storm Water	
[X] Effluent/Receiving Waters	[X] Operations & Maintenance	[ ] Combined Sewer Overflow	
[ ] Flow Measurement	[ ] Sludge Handling/Disposal	[ ] Sanitary Sewer Overflow	

Section D: Summary of Findings/Comments (Attach additional sheets of narrative and checklists as necessary)

SEV Codes	SEV Description

***The permit renewal application has been received. The current Discharge Permit is effective until the renewed Discharge Permit is issued.**

SEE ATTACHED REPORT.

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Phone and Fax Numbers	Date
Liz Dickson 	Vermont ANR/DEC/Watershed Management Division Phone: 802-828-1535 Fax: 802-828-1544	January 2, 2014
Signature of Management QA Reviewer	Agency/Office/Phone and Fax Numbers	Date